IN THE CLAIMS

Please amend the claims as indicated:

WHAT IS CLAIMED IS:

1. (currently amended) An apparatus for use on a bottom hole assembly (BHA) for conveying in a borehole in an earth formation, the apparatus comprising:

(a) an orientation sensor making measurements indicative of a toolface angle of said BHA during rotation of the BHA;

(b) at least one ~~resistivity~~ directionally sensitive formation evaluation sensor for making measurements of a ~~resistivity~~ property of said earth formation during said continued rotation; and

(c) a processor ~~for determining~~ which estimates from said ~~resistivity~~ directionally sensitive measurements and said orientation sensor measurements a ~~apparent dip angle between an axis of said borehole and an interface in~~ local spatial characteristic of said earth formation

wherein said BHA has a non-uniform rate of rotation.

2. (currently amended) The apparatus of claim 1 wherein said local spatial characteristic comprises ~~interface is~~ a dip of a bed boundary.

3. (currently amended) The apparatus of claim 1 wherein said local spatial characteristic comprises a dip of ~~interface is~~ an oil-water contact.

4. (currently amended) The apparatus of claim 1 wherein said at least one ~~resistivity~~ directionally sensitive formation evaluation sensor comprises two ~~axially spaced apart resistivity~~ directionally sensitive formation evaluation sensors spaced apart along an axial direction of said BHA..

5. (currently amended) The apparatus of claim 1 wherein the at least one ~~resistivity~~ directionally sensitive formation evaluation sensor comprises a galvanic resistivity sensor.

6. (original) The apparatus of claim 5 wherein said galvanic sensor comprises a focused sensor.

7. (currently amended) The apparatus of claim 1 wherein said at least one directionally sensitive formation evaluation sensor comprises an induction sensor.

8. (original) The apparatus of claim 7 wherein said induction sensor comprises a sensor having a coil with an axis inclined to an axis of said BHA.

9. (currently amended) The apparatus of claim 1 wherein said ~~resistivity~~ at least one directionally sensitive formation evaluation sensor comprises a resistivity sensor having a plurality of transmitter-receiver spacings and further comprises circuitry

for measuring at least one of (i) an amplitude difference, and, (ii) a phase difference of signals measured at said plurality of spacings.

10. (original) The apparatus of claim 1 wherein said orientation sensor is associated with a first processor and said at least one resistivity sensor is associated with a second processor, said first and second processors being on a common bus.

11. (currently amended) The apparatus of claim 1 wherein said orientation sensor comprises at least one of (i) a magnetometer, (ii) an accelerometer, and, (iii) a gyrsocope.

12. **canceled**

13. (currently amended) The apparatus of claim 1 further comprising a ~~gyroscope~~ sensor for providing a measurement indicative of an inclination and azimuth of said borehole.

14. (original) The apparatus of claim 1 wherein said processor further determines a bias in said orientation measurements.

15. **(canceled)**

16. (currently amended) The apparatus of claim 1 wherein said at least one directionally sensitive formation evaluation comprises a resistivity sensor ~~is~~ mounted on one of (i) a pad, (ii) a rib, and, (iii) a stabilizer.

17. (currently amended) The apparatus of claim 1 wherein said processor further constructs and corrects an image of said borehole.

18. (currently amended) The apparatus of claim 1 wherein ~~said~~ a processor further controls a drilling direction of said borehole based on said ~~apparent dip angle~~ local spatial characteristic of said earth formation.

19. (currently amended) The apparatus of claim 1 wherein said processor determines said ~~apparent dip angle~~ local spatial characteristic of said earth formation based on an apparent rate of penetration.

20. (currently amended) A method of ~~determining~~ estimating a ~~dip~~ local spatial characteristic of an earth formation, the method comprising:

(a) conveying a bottom hole assembly (BHA) into a borehole in an earth formation;

(b) using an orientation sensor on said BHA for making measurements indicative of a toolface angle of said BHA during rotation of the BHA;

(c) using ~~at least one resistivity~~ a first directionally sensitive formation valuation sensor on said BHA for making measurements indicative of ~~a tivity~~ of said local spatial characteristic of said earth formation during said continued rotation; and

(d) ~~determining~~ estimating from said ~~resistivity~~ measurements of said directionally sensitive formation evaluation sensor and said orientation sensor measurements said ~~dip~~ local spatial characteristic of said earth formation, said ~~determination~~ estimation correcting for a non-uniform rate of rotation of said BHA.

21. (currently amended) The method of claim 20 further comprising using said determined ~~dip~~ local spatial characteristic for controlling a drilling direction of said borehole.

22. (currently amended) The method of claim 20 wherein said ~~dip~~ local spatial characteristic comprises a apparent dip angle between an axis of said borehole and a bed boundary in said earth formation.

23. (currently amended) The method of claim 20 wherein determining said dip characteristic further comprises using measurements from ~~an additional resistivity~~ a second directionally sensitive formation evaluation sensor spaced apart axially from said ~~at least one resistivity~~ first directionally sensitive formation evaluation

sensor.

24. (currently amended) The method of claim 20 wherein the ~~at least one~~ first ~~resistivity~~ directionally sensitive formation evaluation sensor comprises a galvanic sensor.

25. (original) The method of claim 24 wherein said galvanic sensor comprises a focused sensor.

26. (currently amended) The method of claim 20 wherein said ~~at least one resistivity~~ first directionally sensitive formation evaluation sensor comprises an induction sensor.

27. (currently amended) The method of claim 26 wherein said induction sensor comprises a sensor having a coil with an axis inclined to an axis of said BHA.

28. (currently amended) The method of claim 20 wherein said ~~resistivity~~ first directionally sensitive formation evaluation sensor comprises a resistivity sensor with a plurality of transmitter-receiver spacings, and using said resistivity sensor further comprises a making measurements of at least one of (i) and amplitude difference, and, (ii) a phase difference of signals measured at said plurality of spacings.

29. (currently amended) The method of claim 20 further comprising coupling a first processor associated with said orientation sensor and a second processor associated with the ~~at least one resistivity~~ first directionally sensitive formation evaluation sensor to a common bus.

30. (currently amended) The method of claim 20 wherein said orientation sensor ~~comprises~~ is selected from the group consisting of: (i) a magnetometer, (ii) an accelerometer, and, (iii) a gyroscope..

31. **canceled**

32. (currently amended) The method of claim 20 further comprising using ~~a gyroscope~~ an additional sensor for providing a measurement indicative of an inclination and azimuth of said borehole.

33. (original) The method of claim 20 further comprising determining a bias in said orientation measurements.

34. **canceled**

35. (currently amended) The method claim 20 wherein said ~~resistivity~~ first

directionally sensitive formation evaluation sensor is mounted on one of (i) a pad, (ii) a rib, and, (iii) a stabilizer.

36. (original) The method of claim 20 further comprising obtaining an image of said borehole.

37. (original) The method of claim 36 further comprising correcting said image.

38. (original) The method of claim 36 further comprising identifying tool face angles associated with a sticking of the BHA.

39. (new) The apparatus of claim 1 wherein said directionally sensitive formation evaluation sensor is selected from the group consisiting of (i) a resistivity sensor, and, (ii) a nuclear sensor.

40. (new) The apparatus of claim 1 wherein said local spatial characteristic of said earth formation is selected from the group consisting of (i) a dip of an interface in said earth formation, and, (ii) an image of a wall of said borehole.

41. (new) The apparatus of claim 4 further comprising a processor for determining from measurements made by said two directionally sensitive formation evaluation sensors a rate of penetration of said BHA.

42. (new) The apparatus of claim 13 wherein said sensor for providing a measurement indicative of an inclination and azimuth of said borehole comprises a gyroscope.

43. (new) The method of claim 20 wherein said directionally sensitive formation evaluation sensor is selected from the group consisiting of (i) a resistivity sensor, and, (ii) a nuclear sensor.

44. (new) The apparatus of claim 20 wherein said local spatial characteristic of said earth formation is selected from the group consisting of (i) a dip of an interface in said earth formation, and, (ii) an image of a wall of said borehole.

45. (new) The apparatus of claim 1 wherein said alters a direction of drilling of said BHA based at least in part on said estimated local spatial characteristic of said earth formation.

46. (new) The method of claim further comprising altering a direction of drilling of said BHA based at least in part on said estimated local spatial characteristic of said earth formation.

REMARKS